

**MICHIGAN DEPARTMENT OF CIVIL SERVICE**  
**JOB SPECIFICATION**

**TRANSPORTATION ENGINEER**

**JOB DESCRIPTION**

Employees in this job complete and oversee a variety of professional assignments in one or more specialized areas of transportation engineering involving research, planning, design, construction and maintenance of state highways, bridges and related structures.

There are four classifications in this job.

**Position Code Title – Transportation Engineer-E**

Transportation Engineer 9

This is the entry level. As a trainee, the employee carries out a range of professional transportation engineering assignments while learning the methods of the work.

Transportation Engineer 10

This is the intermediate level. The employee carries out an expanding range of professional transportation engineering assignments in a developing capacity.

Transportation Engineer P11

This is the experienced level. The employee performs a full range of professional transportation engineering assignments in a full functioning capacity. Considerable independent judgement is required to carry out assignments that have significant impact on services or programs. Guidelines may be available, but require adaptation or interpretation to determine appropriate courses of action.

**Position Code Title – Transportation Engineer-A**

Transportation Engineer 12

This is the advanced level. The employee may function as a lead worker or senior worker. At this level, employees are responsible for overseeing the work assignments of other professionals or have regular assignments, which have been recognized by Civil Service as having significantly greater complexity than those assigned at the experienced level in the series.

**NOTE:** Employees generally progress through this series to the experienced-level based on satisfactory performance and possession of the required experience.

**JOB DUTIES**

**NOTE:** The job duties listed are typical examples of the work performed by positions in this job classification. Not all duties assigned to every

## **TRANSPORTATION ENGINEER**

### **PAGE No. 2**

position are included, nor is it expected that all positions will be assigned every duty.

Prepares and checks detail plans, design calculations, cost estimations and recommendations prepared by other engineers for completeness, mathematical accuracy and conformity to engineering practices and standards.

Compiles and analyzes engineering data and prepares conclusions and recommendations.

Designs and prepares preliminary and final plans for highways, bridges, drainage structures, municipal utilities, roadway lighting, and miscellaneous highway facilities.

Discusses plans, specifications and work schedules with contractors, utility companies and other governmental agencies.

May perform or oversee the survey, staking, layout and inspection of construction projects.

Participates in studies to determine sufficiency of existing highway systems and structures and programming of future construction.

Estimates cost of projects and writes contracts and specifications for labor, materials and equipment.

Develops preliminary engineering treatments to determine construction feasibility and estimated costs.

Investigates traffic problems and recommends methods to improve traffic flow and safety.

Meets with representatives of private industry, local organizations and citizens to discuss proposed highway construction activity.

Interprets contracts, specifications and plans to contractors, subordinates and the public.

Recommends construction methods best suited to soil types encountered.

Prepares final layout drawings and stress calculations.

Prepares studies and completes designs of highway structures of all classifications.

Develops data for public review, hearings or informational meetings.

Determines the validity and reliability of testing methods and procedures.

## **TRANSPORTATION ENGINEER**

**PAGE No. 3**

Prepares hydrologic/hydraulic studies and reports for use in the design of highway structures.

May serve as quality assurance engineer reviewing plans, testing or construction for highway projects.

In a training capacity, conducts survey and inspection on construction projects.

Uses computers to carry out, track and troubleshoot work assignments.

Maintains records and prepares reports and correspondence related to the work.

May perform related functions appropriate to the as required.

### **Additional Job Duties**

#### **Transportation Engineer 12 (Lead Worker)**

Oversees the work of professional staff by making and reviewing work assignments, establishing priorities, coordinating activities, and resolving related work problems.

#### **Transportation Engineer 12 (Senior Worker)**

Performs on a regular basis professional transportation engineering assignments, which are recognized by Civil Service as more complex than those assigned at the experienced level.

### **JOB QUALIFICATIONS**

#### **Knowledge, Skills, and Abilities**

**NOTE:** Some knowledge in the area listed is required at the entry level, developing knowledge is necessary at the intermediate level, considerable knowledge is required at the experienced level, and thorough knowledge is required at the advanced level.

Knowledge of engineering principles and practices used in the location design, construction and maintenance of all types of highways, bridges and related structures.

Knowledge of highway laws, codes, standards and specifications pertaining to highway engineering and costs.

Knowledge of materials, methods and techniques used in the design, construction and maintenance of highways, bridges and related structures.

Knowledge of the procedures and practices applied in the inspection and testing of materials used in highway and bridge construction and the design of such materials.

## **TRANSPORTATION ENGINEER**

**PAGE NO. 4**

Knowledge of engineering office practices and procedures.

Ability to make mathematical computations and design engineering projects.

Ability to use engineering instruments and tools including computers and engineering workstations.

Ability to read and interpret engineering plans, specifications and technical reports.

Ability to maintain records and prepare reports and correspondence related to the work.

Ability to communicate effectively with others.

Ability to maintain favorable public relations.

### **Additional Knowledge, Skills, and Abilities**

Transportation Engineer 12 (Lead Worker)

Ability to organize and coordinate the work of others.

Ability to set priorities and assign work to other professionals.

### **Working Conditions**

Some jobs require an employee to work outdoors as well as in an office or a laboratory.

### **Physical Requirements**

The job duties require an employee to traverse rough terrain.

### **Education**

Possession of a bachelor's of science degree in civil engineering.

### **Experience**

Transportation Engineer 9

No specific amount or type is required.

Transportation Engineer 10

One year of professional experience equivalent to a Transportation Engineer in state service involved in the planning, research, design, construction or maintenance of highways and bridges.

Transportation Engineer P11

Two years of professional experience equivalent to a Transportation Engineer in state service involved in the planning, research, design, construction or maintenance of

## **TRANSPORTATION ENGINEER**

**PAGE No. 5**

highways and bridges, including one year equivalent to an intermediate level Transportation Engineer.

### **Transportation Engineer 12**

Three years of professional experience equivalent to a Transportation Engineer in state service involved in the planning, research, design, construction or maintenance of highways and bridges, including one year of experience equivalent to a Transportation Engineer P11.

### **Special Requirements, Licenses, and Certifications**

None.

**NOTE:** Equivalent combinations of education and experience that provide the required knowledge, skills, and abilities will be evaluated on an individual basis.

## **JOB CODE, POSITION TITLES AND CODES, AND COMPENSATION INFORMATION**

### **Job Code**

TRANSENG

### **Job Code Description**

Transportation Engineer

### **Position Title**

Transportation Engineer-E

Transportation Engineer-A

### **Position Code**

TRAENGE

TRAENGA

### **Pay Schedule**

H21-004

H21-013

ECP Group 2  
Revised 12/11/00  
CMV/VLWT